

REMARKS/ARGUMENTS

We have amended the claims to address the examiner's §112 concerns and to more particularly point out and distinctly claim the invention. More specifically, we have amended claim 48 so that it is directed to a multi-cavity thin-film interference filter including at least two Fabry-Perot cavity structures and we have canceled claim 50 and added new claims 60-65 which depend from 48. We have also added claim 66, which is a method claim that corresponds to claim 48, and we have added claim 67, which depends from claim 66. Finally we have canceled the withdrawn claims (i.e., claims 33-47 and 52-59). After the above-identified amendments have been entered claims 48, 49, 51 and 60-67 will be pending in this application.

The examiner rejected claims 48-51 under 35 U.S.C. §102(b) as anticipated by Halbout et al. (U.S. 5,408,319).

We note that Halbout does disclose an embodiment that includes two Fabry-Perot cavities. That embodiment is shown in Fig. 2. However, the structure shown in Fig. 2 is not "a sequence of alternating layers of amorphous silicon and a dielectric material deposited one on top of the other to form a tunable bandpass filter," as recited in amended claim 48. Indeed, Halbout's technique for fabricating the structures shown in his Figs. 1 and 2 cannot produce the claimed structure. The mirrors for the first cavity structure, which includes spacer 18, (see dielectric stacks 36 and 50) are deposited on each side of the layer 18 after layer 18 has been formed. Because of how Halbout builds his structure, it is not possible to deposit the spacer layer on the bottom mirror represented by dielectric stack 50.

Also, note that Halbout's spacer 18 is not an amorphous silicon layer, as required by claim 48 as amended. On the contrary, it is an epitaxially-grown silicon layer thereby indicating that it is a crystalline silicon layer. Similarly, the spacer 82 in the upper is also crystalline silicon and not amorphous silicon. This is apparent from the following description found in Halbout:

As shown in FIG. 2, an additional semiconductor layer such as silicon may be formed on top of first partially-reflective mirror 34 is performed. Possible growth techniques include, polysilicon deposition followed by laterally scanned melt/regrowth seeded from the substrate crystal or crystallographically dependent growth-rate overgrowth. Either growth technique could be followed by a mechanical polish of upper surface 83 to provide an optical finish. (Col. 5, lines 16-23).

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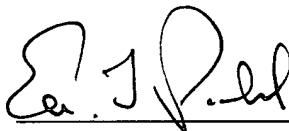
Furthermore, Halbout's mirrors are also not made of amorphous silicon layers, as is also required by claim 48. Rather they are made of alternating dielectric layers of titanium oxide (TiO₂) and silicon dioxide (SiO₂). See Col. 3, lines 32-37.

For the reasons stated above, we believe that the claims are allowable and therefore ask the Examiner to allow them to issue.

A Petition for a three-month Extension of Time is hereby requested. Please apply any charges not covered, or any credits, to Deposit Account No. 08-0219.

Respectfully submitted,

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Eric L. Prahl
Reg. No. 32,590

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109
Telephone: (617) 526-6000
Facsimile: (617) 526-5000